WHAT IS CLAIMED IS:

1. Isolated nucleic acid comprising DNA having at least about 600 nucleotides and at least about a 95% sequence identity to (a) a DNA molecule encoding a human guanylate binding protein-4 (GBP-4) polypeptide comprising the sequence of amino acids 1-591 of Figure 1 (SEQ ID NO:3), or (b) the complement of the DNA molecule of (a).

2. The nucleic acid of claim 1 having at least one GBP-4 biological activity.

3. The nucleic acid of claim 1 comprising DNA having at least about a 99% sequence identity to (a) a DNA molecule encoding a human GBP-4 polypeptide comprising the sequence of amino acids 1 to 591 of Figure 1 (SEQ ID NO:3), or (b) the complement of the DNA molecule of (a).

4. The nucleic acid of claim 3 comprising DNA encoding a human GBP-4 polypeptide having amino acid residues 1 to 591 of Figure 1 (SEQ ID NO:3), or the complement of the encoding DNA.

5. Isolated nucleic acid comprising DNA having at least about 600 nucleotides and at least about a 95% sequence identity to (a) a DNA molecule encoding the same full-length polypeptide encoded by the human guanylate binding protein-4 (GBP-4) polypeptide cDNA in ATCC Deposit No. 209,456 (pRK5-based plasmid pRK5.hu.GBP4-histag.71), or (b) the complement of the DNA molecule of (a).

6. A vector comprising the nucleic acid of claim 1.

7. A host cell comprising the vector of claim 6.

8. The host cell of claim 7 that is a human cell, CHO cell, or *E. coli*.

9. A process for producing a GBP-4 polypeptide comprising culturing the host cell of claim 7 under conditions suitable for expression of the GBP-4 polypeptide and recovering the GBP-4 polypeptide from the cell culture.

10. Isolated GBP-4 polypeptide encoded by the nucleic acid of claim 1.

11. The polypeptide of claim 10 that is human GBP-4.

12. A chimeric molecule comprising a guanylate binding protein-4 (GBP-4) polypeptide fused to a heterologous amino acid sequence.

13. The chimeric molecule of claim 12 wherein said heterologous amino acid sequence is an epitope tag sequence or an Fc region of an immunoglobulin.

14. An antibody which specifically binds to a guanylate binding protein-4 (GBP-4) polypeptide.

15. The antibody of claim 14 wherein said antibody is a monoclonal antibody.

16. Isolated nucleic acid having at least about 600 nucleotides and produced by hybridizing a test DNA molecule under stringent conditions with (a) a DNA molecule encoding a human guanylate binding protein-4 (GBP-4) polypeptide comprising the sequence of amino acids 1 to 591 of Figure 1 (SEQ ID NO:3), or (b) the complement of the DNA molecule of (a), and, if the test DNA

molecule has at least about a 95% sequence identity to (a) or (b), isolating the test DNA molecule.

17. A polypeptide produced by (i) hybridizing a test DNA molecule under stringent conditions with (a) a DNA molecule encoding a human guanylate binding protein-4 (GBP-4) polypeptide comprising the sequence of amino acids 1 to 591 of Figure 1 (SEQ ID NO:3), or (b) the complement of the DNA molecule of (a), and if the test DNA molecule has at least about a 95% sequence identity to (a) or (b), (ii) culturing a host cell comprising the test DNA molecule under conditions suitable for expression of the polypeptide, and (iii) recovering the polypeptide from the cell culture.

18. A composition comprising the polypeptide of claim 10 and a carrier therefor.

19. A composition comprising an antagonist to the polypeptide of claim 10 and a carrier therefor.

20. The composition of claim 18 further comprising GTP.

21. A method of determining the presence in a test sample of a molecule that binds to a guanylate binding protein comprising contacting the test sample with the polypeptide of claim 10 and determining if binding has occurred.

22. The method of claim 21 wherein the molecule that binds to the protein is a guanine nucleotide.

23. A method of determining the presence in a test sample of a guanylate-binding protein-4 comprising contacting the test sample with an immobilized guanine nucleotide and determining if binding

has occurred.

24. A method for purifying molecules that bind to a guanylate-binding protein comprising contacting a sample containing the molecules to be purified with the polypeptide of claim 10 immobilized on a support under conditions whereby the molecules to be purified are selectively adsorbed onto the immobilized protein, washing the immobilized support to remove non-adsorbed material, and separating the molecules to be purified from the immobilized protein to which they are adsorbed.

25. The method of claim 24 wherein the molecules to be purified are guanine nucleotides.

26. A method of amplifying a nucleic acid test sample comprising priming a nucleic acid polymerase chain reaction with the nucleic acid of claim 1.

27. A method of determining the presence of nucleic acid encoding guanylate-binding protein-4 in a test sample comprising contacting the nucleic acid of claim 1 with the test sample and determining whether hybridization has occurred.